

CLAIMS

What is claimed is:

1. An optical element for use in an LED illuminated high mounted stop lamp comprising:
a light transmissive dome defining a cavity having an axis extending in a forward direction, the cavity having sufficient volume to enclose an LED light source, the dome having refractive elements directing a first portion of the light emitted from an axially located LED in a direction generally parallel to the forward direction, and otherwise towards a field to be illuminated;
at least one light guide positioned adjacent the dome to receive a second portion of the light emitted by the LED, the light guide extending transversely to the axis and including one or more light directing elements offset from the dome in the direction transverse to the axis to redirect the second portion of light transversely, generally parallel to the forward direction and otherwise to the field to be illuminated.
2. The optical element in claim 1, wherein lightguide has the form of a plate extending transversely to the axis, the plate having approximately parallel rear and forward walls and one or more side walls.
3. The optical element in claim 2, wherein sidewalls refract at least a portion of the second portion of light in the forward direction.
4. The optical element in claim 3, wherein sidewalls are beveled to refract at least a portion of the second portion of light in the forward direction.
5. The optical element in claim 1, wherein the thickness between the forward wall and rear wall of the plate covers a region of the dome that defines a projected angle from the LED to the dome of approximately 30 degrees.
6. The optical element in claim 1, wherein sidewalls with a diameter of the dome define a triangle when viewed axially.
7. The optical element in claim 1, wherein dome includes Fresnel band facets.

8. The optical element in claim 6, wherein the Fresnel bands are on the interior of the dome.
9. The optical element in claim 8, wherein the Fresnel bands encircle the axis and extend from the intersection of the axis with the dome, down along the dome surface to a point having an angle of 60 degrees or more with the axis from the center point of the preferred location of the LED.
10. The optical element in claim 8, wherein the Fresnel bands encircle the axis and extend from the intersection of the axis with the dome, down along the dome surface to a point where the plane of the forward surface of the light guide intersects the dome interior.
11. The optical element in claim 1, wherein the dome and light guide are a single mechanically unit.
12. The optical element in claim 1, wherein a second light guide extends for the dome, and the second light guide extend diametrically away from the first light guide.
13. An optical element for use in an LED illuminated high mounted stop lamp comprising:
 - a light transmissive hemispherical dome for enclosing an centrally positioned LED light source, the dome being axially oriented around a forward axial direction and having a rightside and a leftside each being transverse to the forward direction and in opposite directions one from the other, the dome further having refractive bands 24 encircling the dome adjacent a diametric plane, the refractive bands being molded in the interior of the surface of the dome, the refractive bands directing at least some light emitted by the LED in the forward direction;
 - a rightside light guide positioned adjacent the rightside of the dome to receive light emitted by the LED that is passed transversely from the dome in the right direction, the rightside light guide including light directing elements to redirect the receive light generally in the forward direction; and
 - a leftside light guide positioned adjacent the leftside of the dome to receive light emitted by the LED that is passed transversely from the dome in the left direction, the leftside light guide including light directing elements to redirect the received light generally in the forward direction.